

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

GOPRO, INC,
Petitioner,

v.

360HEROS, INC,
Patent Owner.

Case IPR2018-01754
Patent 9,152,019 B2

Before CHRISTA P. ZADO, KEVIN C. TROCK, and
STACY B. MARGOLIES, *Administrative Patent Judges*.

TROCK, *Administrative Patent Judge*.

DECISION
Instituting *Inter Partes* Review
35 U.S.C. § 314

I. INTRODUCTION

GoPro, Inc. (“Petitioner”) filed a request for *inter partes* review of claims 1–6, 15, 16, 19, 22–25, 30, 34, and 37 (the “challenged claims”) of U.S. Patent No. 9,152,019 B2 (Ex. 1001, “the ’019 patent”). Paper 1 (“Pet.”). 360Heroes, Inc. (“Patent Owner” or “360Heros”) filed a Preliminary Response. Paper 9 (“Prelim. Resp.”).

Under 35 U.S.C. § 314, an *inter partes* review must not be instituted “unless . . . the information presented in the petition . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314(a). Upon considering the evidence presented and the arguments made, we determine Petitioner has demonstrated a reasonable likelihood that it would prevail in showing the unpatentability of at least one of the challenged claims. Accordingly, we institute an *inter partes* review.

A. *Related Proceedings*

Petitioner identifies the following related proceedings: *GoPro, Inc. v. 360Heros, Inc.*, No. 3:16-cv-01944-SI (N.D. Cal.) (the “California Case”), and *360Heros, Inc. v. GoPro, Inc.*, 1:17-cv-01302-LPS-CJB (D. Del.) (the “Delaware Case”). Paper 14, 1. Patent Owner identifies the latter proceeding. Paper 6, 2.

B. *The ’019 Patent*

The ’019 patent, entitled *360 Degree Camera Mount and Related Photographic and Video System*, describes a holding assembly configured to releasably retain a plurality of cameras in a predetermined orientation, the holding assembly comprising a support and a plurality of camera receptacles disposed in a spaced arrangement covering a 360 degree field of view. Ex.

1001, 1:54–58. The cameras fit into various receptacles that are defined in the holder assembly that accommodate each camera, enabling removal of the cameras. *Id.* at 3:3–6. The system is configured to synchronize each of the outputs of the supported cameras to create either a 360 degree by 180 degree full spherical composite image or a 360 degree composite image, which can be either still (photograph) or moving (video). *Id.* at 1:60–65.

As seen in exemplary Figures 1a and 1f below of the '019 patent, the holding assembly 100 has a central axial column 112 (annotated in pink), and a number of radial arms 116 (annotated in tan) extending outwardly from the center column. *Id.* at 6:61–7:1. At the end of each radial arm 116 is a camera receptacle 124 (annotated in blue) that forms an open ended enclosure sized to receive a camera 180. *Id.* at 6:61–7:1, 7:24–30. The camera receptacles 124 are arranged circumferentially about center column 112. *Id.* at 7:2–3. A releasable engagement latch 129 (annotated in gray), allows the camera to be releasably retained in the receptacle. *Id.* at 7:60–8:7.

Annotated Figure 1a of the '019 patent is shown below.

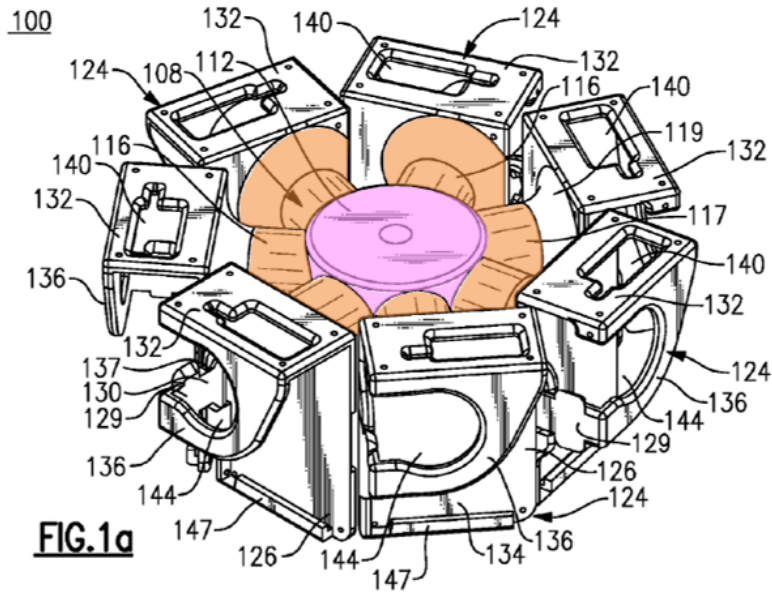


Figure 1a of the '019 patent, above, annotated in color to distinguish certain portions, depicts a camera holding assembly for a 360 degree imaging apparatus. *Id.* at 4:29–30; Pet. 11 (depicting annotated Figure 1a).

Annotated Figure 1f of the '019 patent is shown below.

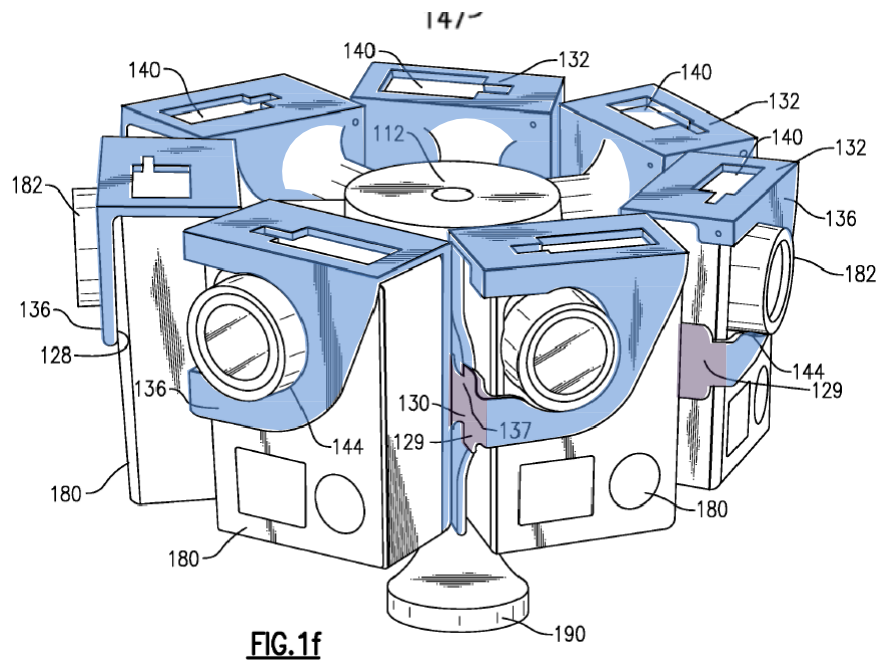


Figure 1f of the '019 patent, above, is a color annotated perspective view of the camera holding assembly of Figure 1a having cameras loaded therein. Ex. 1001, 4:39–40; Pet. 11 (depicting annotated Figure 1f).

C. Challenged Claims

Challenged claims 1, 15, 22, and 30 are independent and are similar with some differences. Claim 1 is exemplary.

1. [1a] A holding assembly configured to releasably retain a plurality of photographic cameras in a predetermined orientation, said holding assembly comprising:
 - [1b] a support including a support body having a plurality of support arms extending outwardly and radially from the support body; and
 - [1c] each of the support arms including a receptacle disposed thereon and in which a plurality of the receptacles are disposed radially about the exterior of said support body,
 - [1d] each of said receptacles defining an open-ended enclosure having at least one latching feature for enabling a photographic camera to be releasably retained within the defined enclosure
 - [1e] wherein the receptacles are oriented about said support such that each retained camera provides an overlapping field of view, the cameras being disposed on the support to create either a 360 degree by 180 degree full spherical composite image or a 360 degree composite image.

Ex. 1001, 22:24–41 (formatting and alphanumeric bracketing added).

D. References

Petitioner relies on the following references:

- (1) Geerds: a video titled “A Ride Down Slickrock Trail” (Ex. 1020, “Geerds”);

(2) Chinese Patent Publication No. CN101963751 B, published November 30, 2011 (Ex. 1014, “Qing”); and

(3) U.S. Patent No. 7,253,840 B2, issued August 7, 2007 (Ex. 1022, “Kayanuma”).

Patent Owner does not contest in its Preliminary Response whether these references qualify as prior art. Prelim. Resp. 9–13.

E. Asserted Grounds of Unpatentability

Petitioner asserts the following grounds of unpatentability against the ’019 patent.

Basis	Patent Claims	Asserted Prior Art
102	1–2, 4–6, 15–16, 19, 22–23, 25, 30, 34, and 37	Geerds
102	1–5, 15–16, 19, 22–24, 30, 34, and 37	Qing
103	1–5, 15–16, 19, 22–24, 30, 34, and 37	Qing and Geerds
103	1–2, 4–6, 15–16, 19, 22–23, 25, 30, 34, and 37	Qing and Kayanuma

II. DISCUSSION

A. 35 U.S.C. § 315(b)

Patent Owner asserts Petitioner is time-barred from filing its petition under 35 U.S.C. § 315(b) and we should, therefore, not institute *inter partes* review of the ’019 patent. *See* Prelim. Resp. 18–25. Section 315(b), titled “Patent Owner’s Action,” provides in relevant part:

An inter partes review may not be instituted if the petition requesting the proceeding is filed more than 1 year after the date on which the petitioner, real party in interest, or privy of the petitioner is served with a complaint alleging infringement of the patent.

35 U.S.C. § 315(b).

Patent Owner argues, “Petitioner failed to file an IPR petition within the statutory one year deadline of being served with a counterclaim of infringement, which serves to bar IPR petitions under the statute.” Prelim. Resp. 1.

Patent Owner describes the relevant procedural history as follows:

On April 13, 2016, GoPro filed a complaint for trademark infringement, unfair competition, copyright infringement, and a declaratory judgment of non-infringement against 360Heros in the Northern District of California (Case No. 3:16-cv-1944) (the “[California] Case”). . . .

[O]n August 22, 2016, 360Heros filed an answer and counterclaim. The counterclaim alleged infringement of the ’019 Patent.

On September 15, 2016, GoPro filed its answer to the counterclaim. . . .

On September 13, 2017, 360Heros filed its complaint in the District of Delaware (Case No. 1:17-cv-1302) (the “[Delaware] Case”), starting parallel litigation proceedings. . . . The [Delaware] complaint [was] served on September 18, 2017.

In the [California Case], on September 15, 2017, GoPro moved for summary judgment for lack of standing and non-infringement, as well as on certain issues in the trademark/copyright case. GoPro’s lack of standing argument claimed that Mike Kintner, CEO of 360Heros and inventor on the ’019 Patent, did not assign the [’019] patent to 360Heros until October 2016. . . . [T]here was no formal assignment agreement signed until October 2016. . . .

. . . .

In the [] California Case, on November 14, 2017, the Court granted GoPro’s motion for summary judgment of lack of standing. . . .

. . . .

In the California [C]ase, on May 16, 2018, the parties settled all remaining copyright and trademark claims. The [California Case] was formally dismissed on May 21, 2018. . . .

. . . .

On September 17, 2018, GoPro filed its present petition for IPR on the ‘019 patent – this is exactly a year minus one day from the date GoPro was served with the Delaware complaint.

Prelim. Resp. 2–6.

Patent Owner argues, “GoPro’s time to file an IPR expired on August 22, 2017, a year after it was served by ECF with 360Heros’ Counterclaim for patent infringement.” *Id.* at 18. Patent Owner relies on *Click-to-Call Technologies, LP v. Ingenio, Inc.*, 899 F.3d 1321, 1330 (Fed. Cir. 2018); *St. Jude Medical, Cardiology Division, Inc. v. Volcano Corp.*, Case IPR2013-00258 (PTAB Oct. 16, 2013) (Paper 29); *Ford Motor Co. v. Versata Development Grp., Inc.*, Case IPR2017-00150 and IPR2017-00151, 2017 Pat. App. LEXIS 12993 (PTAB May 1, 2017) (Paper 7); and *Histologics, LLC v. CDX Diagnostics, Inc.*, Case IPR2014-00779, 2014 Pat. App. LEXIS 6288 (PTAB Sept. 12, 2014) (Paper 6), to support its argument that “serv[ice] by ECF with 360Heros’ Counterclaim for patent infringement” in the California Case on August 22, 2016, began the § 315(b) time bar clock running with respect to the filing of the Petition in this proceeding. *See* Prelim. Resp. 18–21. We disagree.

Patent Owner argues *Click-to-Call* applies here and provides no exceptions for events occurring after the service of the complaint, regardless of any other effect a dismissal might have. Prelim. Resp. 19. However, as

the Federal Circuit has noted, the issue before us in this case—i.e., whether a complaint (or counterclaim) filed without standing triggers § 315(b)’s time bar—was “not present, or considered, in *Click-to-Call*.” *Hamilton Beach Brands, Inc. v. F’real Foods, LLC*, 908 F.3d 1328, 1337 (Fed. Cir. 2018) (declining to decide whether a complaint filed without standing could trigger the time bar of § 315(b)).

Moreover, standing was not the dispositive issue in the other cases relied on by Patent Owner to support its position that denial of institution is required under § 315(b). In those cases, it was not disputed that the claim of infringement was made by an entity that owned the patent (and thus had standing) at the time of filing, and thus none of the decisions determined that § 315(b) applies to a claim of infringement made by an entity that lacks standing.

Standing, however, *must exist* at the time of the filing of a complaint and cannot be cured retroactively. *See Alps South, LLC v. Ohio Willow Wood Co.* 787 F.3d 1379, 1385 (Fed. Cir. 2015) (“The party asserting patent infringement is ‘required to have legal title to the patents on the day it filed the complaint and that requirement can not be met retroactively.’” (quoting *Abraxis Bioscience, Inc. v. Navinta LLC*, 625 F.3d 1359, 1366 (Fed. Cir. 2010))).

Here, Patent Owner concedes that, although 360Heros did file a counterclaim for patent infringement against Petitioner in the California Case on August 22, 2016, “there was no formal assignment agreement signed until October 2016.” Prelim. Resp. 4. According to Patent Owner, the Court in the California Case “granted GoPro’s motion for summary judgment of lack of standing.” *Id.* at 5. Patent Owner nonetheless maintains it had standing to file the counterclaim in question “for the reasons set forth

in its summary judgment opposition brief [in the California Case],” and has no opportunity to appeal the summary judgment decision. *Id.* at 22. We do not consider arguments incorporated by reference from the summary judgment opposition brief. 37 C.F.R. § 42.6(a)(3) (“Arguments must not be incorporated by reference from one document into another document”). In addition, Patent Owner gave up its right to appeal the summary judgment decision when it settled the California Case. For purposes of this decision, we acknowledge the California Court’s determination that 360Heros did not have standing to file a counterclaim for patent infringement against GoPro in August 2016.

Patent Owner also largely ignores a line of PTAB cases in which ownership of the patent at issue at the time of the filing of a complaint (or counterclaim) for patent infringement was determined to be necessary to start the § 315(b) time bar clock running. For example, in *Hamilton Beach Brands, Inc. v. F’real Foods, LLC*, Case IPR2016-1107, 2016 WL 7985447, at *4 (PTAB Nov. 30, 2016), *aff’d on other grounds*, 908 F.3d 1328 (Fed. Cir. 2018), the Board concluded that because Patent Owner lacked standing to file the original complaint, the complaint was not a “proper federal pleading” and thus did not trigger the one-year time bar under § 315(b). Similarly, in *Yamaha Corp. of America, v. Black Hills Media, LLC*, Case IPR2014-00766, 2014 WL 6687319, at *4 (Nov. 24, 2014), the Board found that there was no time bar when the patent assignment was obtained a few months after the filing of the complaint for patent infringement. Finally, in *Sling TV, L.L.C. v. Realtime Adaptive Streaming LLC*, Case IPR2018-01331, slip op. at 5–7 (PTAB Jan. 31, 2019) (Paper 9), the Board found that the § 315(b) time bar did not apply because the entity that filed the complaint for patent infringement did not own the patent at issue, as it had previously

recorded an assignment to a different entity.

Here, Patent Owner's concession that "there was no formal [patent] assignment agreement signed" until two months after 360Heros filed a counterclaim of patent infringement against Petitioner, coupled with the District Court in the California Case granting Petitioner summary judgment for lack of standing, persuades us that the counterclaim in the California Case was not filed by the patentee. Thus, consistent with the several Board decisions that have determined the one-year time bar under § 315(b) is not triggered by the filing of an infringement claim by an entity that does not own the patent, we determine here that the § 315(b) time bar was not triggered by the filing of the counterclaim in the California Case. Accordingly, we determine that the § 315(b) time bar does not apply to this proceeding.

B. Level of Ordinary Skill

In determining whether an invention would have been obvious at the time it was made, we consider the level of ordinary skill in the pertinent art at the time of the invention. *Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966). "The importance of resolving the level of ordinary skill in the art lies in the necessity of maintaining objectivity in the obviousness inquiry." *Ryko Mfg. Co. v. Nu-Star, Inc.*, 950 F.2d 714, 718 (Fed. Cir. 1991).

Petitioner asserts that a person of ordinary skill in the art in the field of the '019 patent would have had at least a Bachelor's degree in Mechanical Engineering or at least a high school degree and at least two years of experience designing or working with mechanical structures. Pet. 5 (citing Ex. 1003 ¶¶ 14–15).

Patent Owner asserts a person of ordinary skill in the art would have had an undergraduate degree in an engineering discipline, such as

mechanical engineering, together with two years or more of post-graduate engineering experience including experience using or designing photographic or video systems or component mounting devices. Prelim. Resp. 16 (citing Ex. 2001 ¶ 7).

The parties' positions are similar, though not identical. For purposes of this decision, and based on the record before us, we adopt Petitioner's assessment of the level of ordinary skill in the art. We note that Patent Owner does not contend that any patentability issue turns on the difference between the parties' proposed skill levels.

C. Claim Construction

In an *inter partes* review, claim terms in an unexpired patent are interpreted according to their broadest reasonable constructions in light of the specification of the patent in which they appear. *See* 37 C.F.R. § 42.100(b) (2018);¹ *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2142 (2016). Under the broadest reasonable construction standard, claim terms are presumed to have their ordinary and customary meaning, as would be understood by one of ordinary skill in the art in the context of the entire disclosure. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). Only terms that are in controversy need to be construed, and then only to the extent necessary to resolve the controversy. *Nidec Motor*

¹ Because the Petition was filed before November 13, 2018, the revised claim construction standard for interpreting claims in *inter partes* review proceedings as set forth in the final rule published October 11, 2018 does not apply to this proceeding. Changes to the Claim Construction Standard for Interpreting Claims in Trial Proceedings Before the Patent Trial and Appeal Board, 83 Fed. Reg. 51340 (Oct. 11, 2018) (to be codified at 37 C.F.R. pt. 42) (stating the new "rule is effective on November 13, 2018 and applies to all IPR, PGR and CBM petitions filed on or after the effective date").

Corp. v. Zhongshan Broad Ocean Motor Co., 868 F.3d 1013, 1017 (Fed. Cir. 2017); *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999).

The parties have indicated that they have engaged in claim construction proceedings in both the California Case and the Delaware Case. *See* Pet. 19–20; Prelim. Resp. 13–16. Although it appears from the record that a Markman Order was issued in the California Case (*see, e.g.*, Prelim. Resp. 14), neither party appears to have made that order part of the record in this proceeding.

Moreover, although the parties appear to have agreed to adopt certain of the claim terms construed by the Northern District of California for purposes of the Delaware Case (*see* Pet. 19 (“In the related Delaware Action, 360Heros and GoPro agreed to adopt the following constructions.”); Prelim. Resp. 15 (“The parties agreed that the above claim constructions, as ordered by the Northern District of California, apply in the Delaware litigation.”)), there does not appear to be a clear statement by either of the parties that those constructions, or any other constructions, have been agreed to by the parties for purposes of this proceeding. *See* Pet. 19–20; Prelim. Resp. 13–16. Petitioner does note, however, “[f]or the purposes of this IPR, no construction of the remaining terms is required.” Pet. 20.

Because it is not necessary to resolve any controversy between the parties at this stage of the proceeding, we do not construe expressly any claims terms at this time.

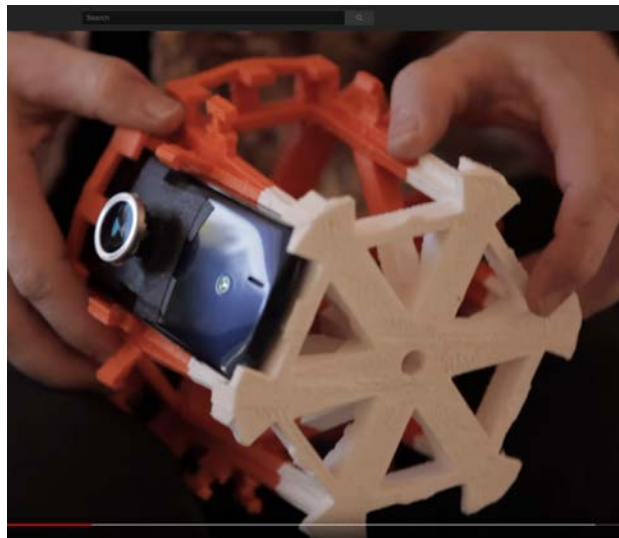
D. Geerds (Ex. 1020)

Geerds is a video entitled, *A Ride Down Slickrock Trail*. Petitioner asserts the video was publicly available at least as of November 10, 2011, and therefore qualifies as prior art. Pet. 21 (citing *Acco Brands v. Think*

Products, IPR2015-01167, Paper 40 at 15-18 (Oct. 11, 2016) (determining that publicly available videos qualify as printed publications for prior art purposes)). Patent Owner does not contest this assertion.

Geerds describes a 3D-printed camera rig, referred to as “version 1,” which, Petitioner asserts, was designed, built, and publicly demonstrated by Joergen Geerds. Pet. 21–22; Ex. 1020. Mr. Geerds’ apparent objective was to make a multiple camera rig capable of 360-degree imagery, initially using Sony Xperia camera phones with fisheye lens adapters. Ex. 1020 at 00:00–00:31. Mr. Geerds apparently designed and created the Version 1 rig using 3D printing, which he apparently finished in September 2011. Ex. 1020 at 00:25–00:47. Mr. Geerds 3D printed the rig as a single plastic piece with six receptacles that allowed the Xperia phones to be removed and replaced in the rig, and held with restraining tabs. Ex. 1020 at 00:25–00:47.

A screenshot from Geerds, shown below, depicts the 3D-printed camera rig with one camera mounted to it.



Ex. 1020, 00:56, 01:39.

E. Qing (Ex. 1015)

Qing “relates to the image processing field and the virtual reality field,

and in particular to a device and method for acquiring a 360° panoramic digital image,” and describes “a device for acquiring a panoramic high dynamic range image with a high resolution in real time.” Ex. 1015 ¶¶ 1, 3. Qing addresses issues in the 360-degree imaging field, “such as the relatively low resolution, severe image distortion, insufficient dynamic range and poor timeliness in the prior art.” *Id.* ¶ 3. Qing’s solution to these issues is a multiple camera rig using digital cameras with a resolution greater than or equal to 12.3 mega pixels, configured with ultra-wide angle lenses. *See id.* ¶¶ 5, 6.

Qing describes an image acquisition device having a central workbench support, a plurality of L-shaped supports “distributed [on the workbench] circumferentially and uniformly,” and cameras “fixed at [the] upper ends of the L-shaped supports” and facing away from the center of such that their “optical axis extended lines of the camera lenses of the image acquisition devices are converged at a point of the circumference.” *Id.* ¶ 4. An additional camera is supported and pointed “vertically upward” so that its optical axis also converges with the other cameras. *Id.* By connecting the cameras to a computer work station, the acquired images can be stored and combined into a panoramic high-resolution panoramic image. *Id.* ¶ 1.

Figure 1 of Qing is shown below.

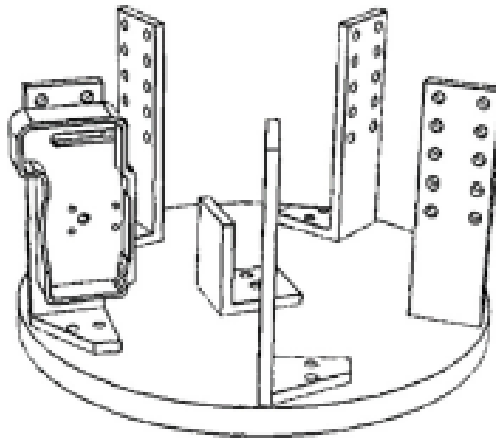


Figure 1

Figure 1, shown above, is a schematic diagram of Qing's acquisition device. *Id.* ¶ 19.

F. Kayanuma

Kayanuma is entitled, *Cradle for Digital Camera*, and relates to “a cradle suitable for a digital camera having a communication function with an external device such as a personal computer.” Ex. 1022, 1:7–9. An exemplary embodiment of this cradle is shown in Figure 8 (below), which shows a camera 90, which may be fixed (locked) in depression 82 of cradle 80 through the operation of hooks 84, lock release button 86, and cradle connector 34, which engages with camera connector 20. *Id.* at 7:62–8:32. A tripod screw 42 on the underside of the cradle allows the cradle to be mounted to other objects, such as a tripod. *Id.* at 8:14–17, Fig. 3.

Figure 8 of Kayanuma is shown below.

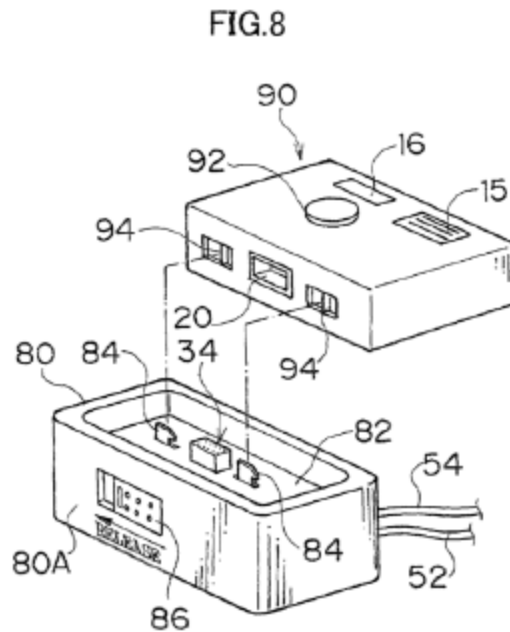


Figure 8 of Kayanuma, above, is a perspective view of a cradle for a digital camera and a digital camera.

G. Patentability Analysis

Petitioner asserts four grounds directed to the unpatentability of the '019 patent. These are: 1) claims 1–2, 4–6, 15–16, 19, 22–23, 25, 30, 34, and 37 are anticipated by Geerds under 35 U.S.C. § 102; 2) claims 1–5, 15–16, 19, 22–24, 30, 34, and 37 are anticipated by Qing under 35 U.S.C. § 102; 3) claims 1–5, 15–16, 19, 22–24, 30, 34, and 37 are obvious over the combination of Qing and Geerds under 35 U.S.C. § 103(a); and 4) claims 1–2, 4–6, 15–16, 19, 22–23, 25, 30, 34, and 37 are obvious over the combination of Qing and Kayanuma under 35 U.S.C. § 103(a). Pet. 23.

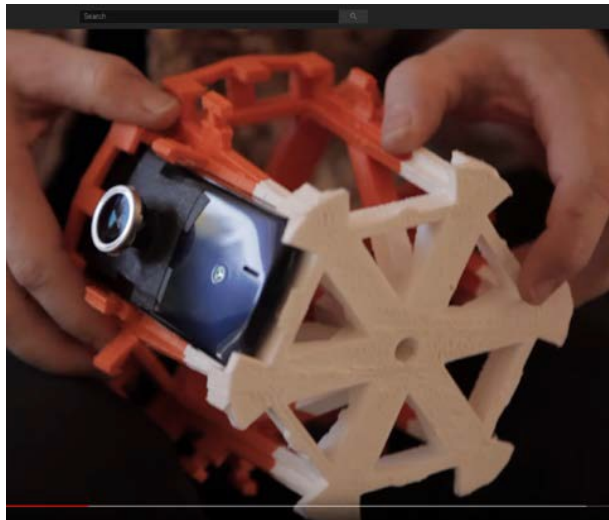
We have considered the evidence and arguments provided by Petitioner to demonstrate the unpatentability of these claims and Patent Owner's arguments disputing Petitioner's showing, and we find that Petitioner has made a sufficient showing for purposes of institution.

1. Anticipation of Claim 1 by Geerds

[1a] A holding assembly configured to releasably retain a plurality of photographic cameras in a predetermined orientation

Petitioner asserts Geerds discloses a system for creating 360-degree images, where the system comprises of a holding assembly/holding fixture configured to releasably retain six photographic cameras in a predetermined orientation. Pet. 27 (citing Ex. 1020, 00:56, 01:39). Petitioner asserts Geerds shows a rig that has six receptacles that allowed the Xperia phones to be securely retained with restraining tabs in the rig and yet easily removed and thus “releasably retained.” *Id.* (citing Ex. 1020, 00:30–00:32; Ex. 1003 ¶ 66). Petitioner also asserts Geerds shows that the cameras are disposed on a support to create a 360-degree image, such as the 360-degree footage displayed in Geerds. *Id.* (citing Ex. 1020, 01:29, 02:09; Ex. 1003 ¶¶ 67–68).

An image from Geerds is shown below.



The image from Geerds, above, shows Geerds’ camera rig with one camera in place. Pet. 27.

Patent Owner argues,

Petitioner's arguments are unclear as to whether the Geerds reference refers only to the video provided as Exhibit 1020, the camera rig shown in Exhibit 1020, the presentation given by Joergen Geerds at the annual International Virtual Reality Photography Association (IVRPA) conference on June 14, 2012 . . . or all of the above in combination.

Prelim. Resp. 26.

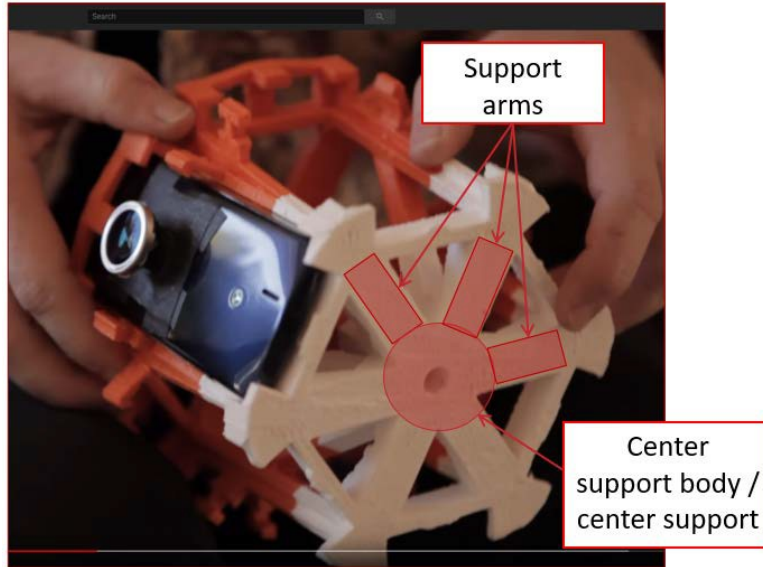
We disagree. Petitioner's application of the disclosure of Geerds to claim 1 (*see, e.g.*, Pet. 26–32) cites to the Geerds video (Ex. 1020) and to those portions of the declaration of Petitioner's expert, Dr. John Pratt (Ex. 1003), discussing the Geerds video (*see, e.g.*, Ex. 1003 ¶¶ 66–68).

Based on this record, Petitioner's explanation that the Geerds' video demonstrates a rig with six receptacles to hold six Experia photographic cameras in a 360-degree orientation, with restraining tabs to make the cameras easily removable, makes a sufficient showing as to [1a].

*[1b] a support including a support body
having a plurality of support arms extending
outwardly and radially from the support body*

Petitioner asserts Geerds discloses a support including a center support body having a plurality of support arms extending outwardly and radially from the center support body. Pet. 28 (citing Ex. 1020, 00:56).

Petitioner's annotated image from Geerds is shown below.



Petitioner's image from Geerds, above, shows Geerd's camera rig annotated to indicate the position of the support arms and the center support body/center support. *Id.*

Patent Owner argues,

the alleged “support body” in Geerds appears to be an arbitrary section of a single body, not distinct from the “support” required by the claims. The arbitrary section of the single body in Geerds that GoPro has identified as a “support body” is not a “structure that holds or positions something,” and so cannot be a support body. Similarly, the arbitrary sections of the single body in Geerds that GoPro has identified as “support arms” are not “structure[s] that hold[] or position[] something,” and so cannot be support arms.

Prelim. Resp. 28–29.

We disagree that the “center support body” identified by Petitioner on the Geerds rig is an arbitrary section of a single body, as Patent Owner argues. Rather, as Dr. Pratt testifies,

Geerds discloses a support body, outwardly and radially extending support arms, with receptacles disposed on the ends of the support arms, the receptacles defining an open-ended enclosure and having a latching feature for enabling a

photographic camera to be releasably retained within the enclosure, and the cameras are retained in an orientation such that their fields of view overlap to allow creation of 360-degree images.

Ex. 1003 ¶ 65.

This testimony indicates that the central portion of the Geerds' rig is the "center support body." From Dr. Pratt's testimony, along with the images and the description of the Geerds' rig from the video, the "center support body" appears to be attached to the six "support arms," which appear to be attached at their outer end to a hexagonal ring, which appears to form the base of the six receptacles to hold the cameras.

We also disagree with Patent Owner's argument that the claims require the "support body" to be distinct from the "support." The claim reads "a support including a support body having a plurality of support arms." Patent Owner does not point to anything in the claim language or the '019 Specification (the "Specification") that would require the "support" to be distinct or separate from the "support body." Indeed, as Dr. Pratt testifies, the "Geerds rig is 3D-printed as a single plastic piece, each receptacle are integral with at least one support arm." Ex. 1003 ¶ 66. We also note that the '019 Specification explains, "[i]n at least one version, the supporting fixture 108 and receptacles 124 can be manufactured using a suitable molding process, as a one-piece assembly, such as shown more specifically in FIG. 1(e)." Ex. 1001, 7:16–19.

Patent Owner's expert, Dr. Randall King, makes the conclusory statement, "[t]he arbitrary section of the single body in Geerds that GoPro has identified as a 'support body' is not a 'structure that holds or positions something,' and so cannot be a support body." Ex. 2001 ¶ 36. Dr. King does not explain why he believes the section identified by Petitioner as the

“support body” is “arbitrary,” or why it is not a “structure that holds or positions something.” Moreover, Dr. King does not explain why a “support body” must be a structure that holds or positions something. The claim construction order in the California Case that Patent Owner cites construed the term “support” as a “structure that holds or positions something,” but gave the term “support body” its “plain meaning in view of the above construction of the term ‘support.’” Prelim. Resp. 14.

Patent Owner also argues, “Geerds does not disclose or teach ‘[a plurality of support arms] extending outwardly and radially from the support body.’” Prelim. Resp. 30. Based on the parties’ claim construction positions in the Delaware Case, Patent Owner argues,

Geerds purports to disclose a unitary body lacking a “common center apex” or discete [sic] support arms “extending [outwardly] from the center.” The portions of the unitary body that GoPro identifies as “support arms” do not extend from the center of the holding assembly. Instead, six of those portions extend from the bottom of the holding assembly, while another six of those portions extend from the top of the holding assembly. The twelve support arms do not intersect at a common center apex.

Id. at 30–31 (citing Ex. 2001 ¶¶ 41–46).

The language of [1b], however, recites “a support including a support body having *a plurality of support arms extending outwardly and radially from the support body*,” not extending outwardly and radially from the “center of the holding assembly” as Patent Owner argues here. Patent Owner does not provide persuasive evidence or argument as to why the claim language of [1b] should be limited to “a plurality of support arms extending outwardly and radially from the [center of the holding assembly].”

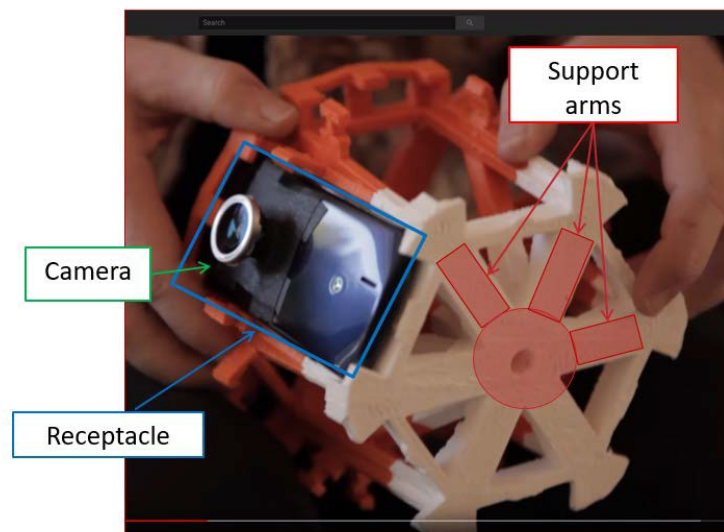
At this stage of the proceeding, we credit Dr. Pratt’s testimony, which appears consistent with the prior art. Accordingly, on this preliminary

record, Petitioner makes a sufficient showing as to limitation [1b].

[1c] each of the support arms including a receptacle disposed thereon and in which a plurality of the receptacles are disposed radially about the exterior of said support body

Petitioner asserts Geerds discloses at least six support arms, with each support arm including a receptacle disposed thereon. Petitioner asserts each receptacle is provided on a corresponding support arm. Pet. 28. Petitioner asserts the receptacles are located at the extending ends of the support arms away from the center support body such that the receptacles are disposed radially about the exterior of the support body/supporting frame/support, with each receptacle occupying 60 degrees of the circumference of the exterior of the support body. *Id.* at 28–29 (citing Ex. 1020, 00:56).

Petitioner’s annotated image from Geerds is shown below.



Petitioner’s image from Geerds, above, shows Geerds’ camera rig annotated to indicate the position of the camera, receptacle, and the support arms. *Id.* at 29.

Patent Owner makes the same arguments with respect to “support arms” that it made with respect to “support body,” *supra*.

Patent Owner also argues, “Geerds does not disclose . . . ‘[each of the support arms including a receptacle] disposed thereon’ . . . because Geerds purports to disclose a unitary body lacking discrete ‘support arms’ or ‘support’ on which these elements can be ‘disposed’ . . . thereon.” Prelim. Resp. 31 (citing Ex. 2001 ¶¶ 47–50). Patent Owner goes on to argue, “each receptacle is not ‘located on’ a support arm or ‘placed and oriented on the surface of’ a support arm. Rather, each receptacle is disposed between two of GoPro’s purported ‘support arms.’” Prelim. Resp. 31–32.

Dr. Pratt, however, testifies, “[s]ince the Geerds rig is 3D-printed as a single plastic piece, each receptacle are integral with at least one support arm.” Ex. 1003 ¶ 66. Dr. Pratt further testifies,

Geerds discloses a plurality of support arms, with each support arm including a receptacle disposed thereon. Each receptacle is provided on a corresponding support arm. The receptacles are located at the ends of the support arms away from the support body such that the receptacles are disposed radially about the exterior of the support body.

Id. at 39 [1c] (citing Ex. 1020 00:56). The annotated image from Geerds, *supra*, shows the physical relationship between the support arms and the receptacles described by Dr. Pratt. At this stage of the proceeding, we credit Dr. Pratt’s testimony as most consistent with the prior art.

On this preliminary record, for the reasons discussed above and also with respect to limitation [1b], Petitioner makes a sufficient showing with respect to limitation [1c].

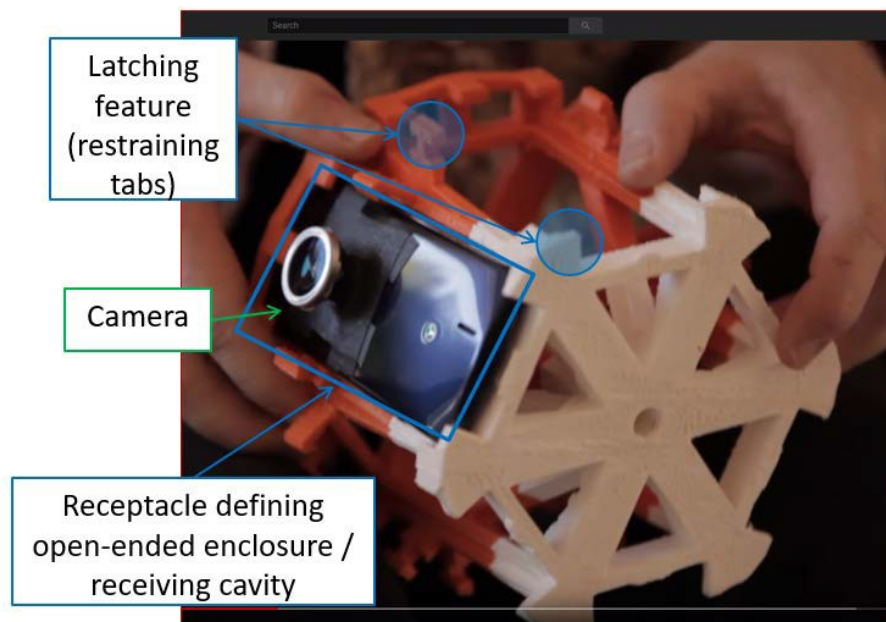
[1d] each of said receptacles defining an open-ended enclosure having at least one latching feature for enabling a photographic camera to be releasably retained within the defined enclosure

Petitioner asserts Geerds discloses that each receptacle defines an

open-ended enclosure/a receiving cavity sized to accommodate/retain a Sony Xperia photographic camera with the receptacle. Pet. 29. Petitioner argues each receptacle defining an open-ended enclosure has at least one latching feature, i.e., a “structural element for securement and release.” *Id.*

Petitioner argues the '019 Patent Specification identifies latching features such as a snap fit and an interference fit. *Id.* (citing Ex. 1001, 3:3–6, 11:54–67). Petitioner argues Geerds discloses restraining tabs, which enables a Sony Xperia photographic camera to be releasably retained within the enclosure/receptacle. *Id.* (citing Ex. 1020, 00:56; Ex. 1003 ¶ 66).

Petitioner’s annotated image from Geerds is shown below.



Petitioner’s image from Geerds, above, shows Geerds’ camera rig annotated to indicate the position of the latching feature (restraining tabs), camera, and receptacle defining open-ended enclosure/receiving cavity. *Id.* at 30.

Patent Owner argues,

the restraining tabs, which Geerds identifies as a latching feature, do not even contact the camera body, and thus they cannot function to enable the camera to be “releasably retained within the defined enclosure.” In fact, the video confirms that the restraining tabs demonstrate [sic] that GoPro identifies as the latching feature GoPro identifies in its Petition does not [sic] work to secure the camera, where so that Geerds had to use what appears to be a rubber band around it to hold the camera in place. Even though the rubber band seems to function to retain the camera in place, it is not something that a POSITA would refer to as a “latching feature.”

Prelim. Resp. 29–30 (citing Ex. 1001, 22:35–36; Ex. 2001 ¶ 39).

Dr. King’s testimony, however, that the identified restraining tabs do not contact the camera body, and therefore cannot function to hold the camera within the enclosure, appears to be inconsistent with Geerds. *See* Ex. 2001 ¶ 39. Geerds shows Mr. Geerds inserting the Experia phone/cameras into position within the receptacles of the rig (Ex. 1020, 00:28–32), and mounting the rig with the attached phone/cameras onto the handlebars of a mountain bike such that the phone/cameras do not fall off the rig when the mountain bike is jostled. (*see, e.g., id.* at 00:45–49, 1:04–1:10). Dr. King does not identify the location of the “rubber band” on the rig to allow us to evaluate his testimony on this point. Ex. 2001 ¶ 39.

Based on this preliminary record, Petitioner makes a sufficient showing as to limitation [1d].

[1e] wherein the receptacles are oriented about said support such that each retained camera provides an overlapping field of view, the cameras being disposed on the support to create either a 360 degree by 180 degree full spherical composite image or a 360 degree composite image

Petitioner argues Geerds discloses receptacles oriented about the support/supporting frame such that the cameras retained/loaded in the

receptacles provide an overlapping field of view to create a 360-degree composite image and that was displayed in Geerds. Pet. 31 (citing Ex. 1020, 01:29, 01:51, 02:09; Ex. 1003 ¶¶ 67–68). Petitioner argues that if there is no overlapping field of view, then a 360-degree composite image could not be created. *Id.* Petitioner notes that while the still captures from the Geerds' video shown do not show the full 360-degree image, they show the overlapping fields of view, the stitching of the images on a computer, and the video further describes the 360-degree image created using this rig. *Id.*

Petitioner's image from Geerds is shown below.



Petitioner's image from Geerds, above, shows images indicating overlapping fields of view from the cameras of Geerd's rig. *Id.*

Patent Owner does not make any arguments directed to limitation [1e]. Based on this preliminary record, Petitioner makes a sufficient showing as to limitation [1e].

Summary of Anticipation of Claim 1 by Geerds

On this preliminary record, for the reasons stated above, we are persuaded Petitioner has demonstrated a reasonable likelihood it would prevail in showing claim 1 is unpatentable as anticipated by Geerds

2. *Anticipation of Claim 1 by Qing*

[1a] A holding assembly configured to releasably retain a plurality of photographic cameras in a predetermined orientation

Petitioner argues Qing discloses a system for creating 360-degree images of a scene of interest, where the system comprises of a holding assembly/holding fixture configured to releasably retain or retain five photographic cameras in a predetermined orientation. Pet. 44–45 (citing Ex. 1015 ¶ 1, Fig 1, Fig. 6).

Figure 1 from Qing, cited by Petitioner, is shown below.

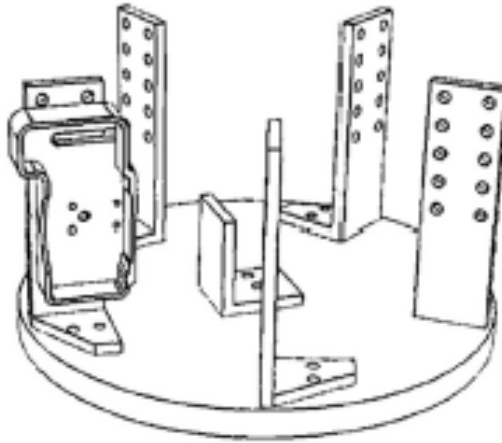


Figure 1

Figure 1 of Qing, shown above, is a schematic diagram of Qing's acquisition device. Figure 6 from Qing, cited by Petitioner, is shown below.

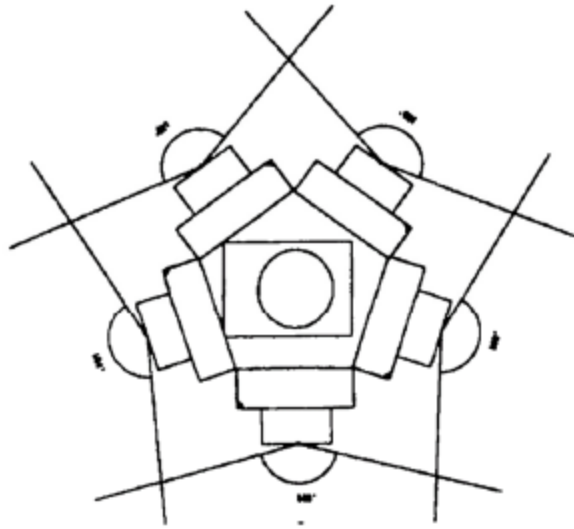


Figure 6

Figure 6 of Qing, above, shows a distribution diagram of Qing's image acquisition unit.

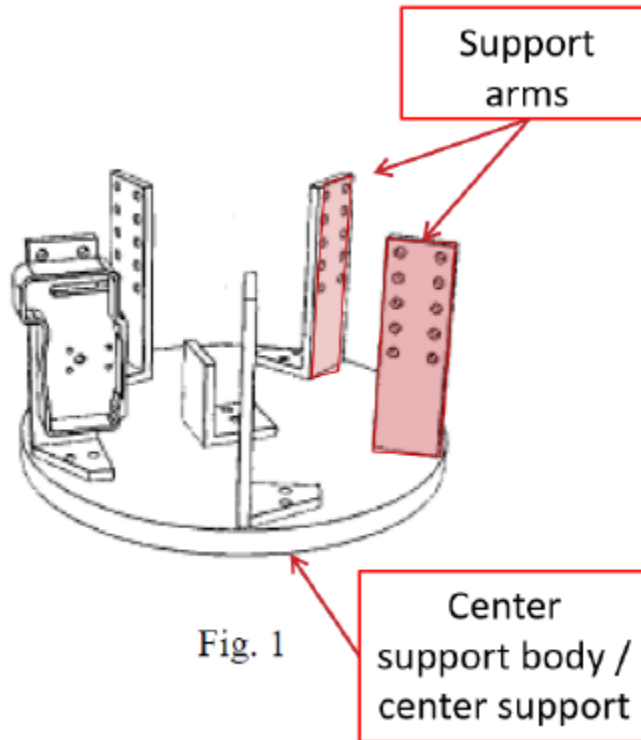
Patent Owner does not make any arguments directed to [1a]. Based on this preliminary record, Petitioner makes a sufficient showing as to [1a].

[1b] a support including a support body having a plurality of support arms extending outwardly and radially from the support body

Petitioner argues Qing discloses “a support/supporting frame including a center support body/center support (workbench) having five support arms (L-shaped supports) extending outwardly and radially from the center support body/center support.” Pet. 45 (citing Ex. 1015 ¶ 4 (“To solve the technical problem, the present invention provides the technical scheme as below: comprising N image acquisition devices, N L-shaped supports and a workbench, and $N > 5$, wherein all L-shaped supports are distributed on the workbench circumferentially and uniformly, and the bottom ends of the L-shaped supports are fixed on the workbench.”), ¶ 28 (“[U]niformly fix the

short side of the L-shaped [support] [] onto the round aluminum alloy workbench.”), Figs. 1, 3, 4). Petitioner argues the “support arms extend radially from the support body in [a] radial direction, and outwardly from the support body in both the horizontal and vertical directions.” *Id.* at 46.

Qing Figure 1, annotated by Petitioner, is shown below.



Qing Figure 1 annotated by Petitioner, shown above, identifies the support arms and the center support body/center support. Pet. 46.

Patent Owner argues, “the alleged ‘support body’ and ‘support arms’ [of Qing] are a unitary structure without distinction.” Prelim. Resp. 37 (citing Ex. 2001 ¶ 57), *see also id.* at 41 (“Qing does not show discrete support arms at all, but rather shows a unitary structure.”). This is essentially the same argument Patent Owner made with respect to Geerds, *supra*, which we found unpersuasive because the claim limitation has no such requirement.

Patent Owner also argues,

Petitioner’s “support arms” extend upwardly from his “support body” and not radially out from it. All of the “support arms” extend outwardly in the same direction from the “support body, so that their relative orientations are thus parallel with each other, with respect to extension from the “support body. . . . The alleged “support arms” . . . at most extending VERTICALLY from the support body, “extending” in a direction PERPENDICULAR, not RADIALLY from any axis.

Id. at 37–38 (citing Ex. 2001 ¶¶ 52–53).

Dr. Pratt testifies, however, “Qing’s L-shaped arms extend and radially from the center support, as the furthest edge of the arm marked ‘distal end’ below extends radially from the center support. The arms also extend outwardly from the center support body in the horizontal and vertical directions.” Ex. 1003 ¶ 82 (citing Ex. 1015, Fig. 1 annotated).

Qing’s Figure 1, annotated by Petitioner, is set out below.

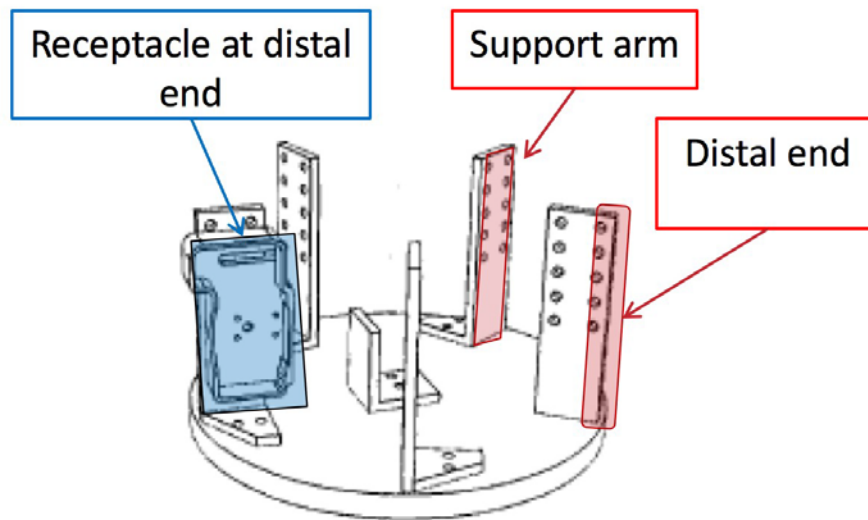


Fig. 1

Qing’s Figure 1, above, is annotated by Petitioner to identify a support arm, distal end of support arm, and receptacle at distal end. Dr. Pratt notes, “[t]he ’019 Patent specification provides for ‘a plurality of *radial* arms 116 extending *outwardly*....’” *Id.* (citing Ex. 1001, 6:61–63 (emphases added), Fig. 1[e]).

Figure 1e of the ’019 patent, cited by Dr. Pratt, is shown below for comparison purposes.

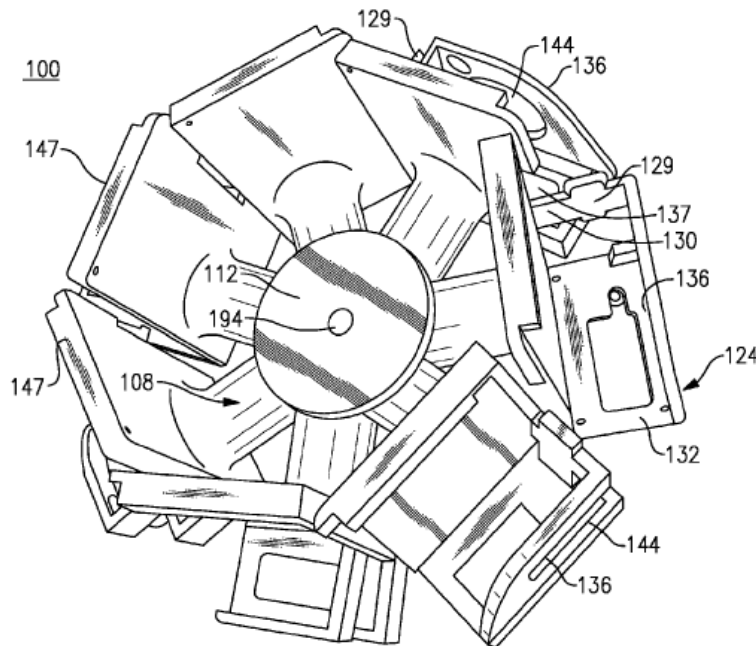


FIG.1e

Figure 1e from the ’109 patent, above, is a perspective view of a camera holding assembly, which identifies by number, a holding assembly 100, supporting fixture 108, center axial column 112, and receptacle 124. Ex. 1001, 4:36–37, 7:16–19, 8:30–35. The ’019 patent describes “a plurality of radial arms 116 extending outwardly from the center column 112” and adds that arms 116 are “radially extending.” *Id.* at 6:61–7:1.

At this stage of the proceeding, we are not persuaded by Petitioner's showing, namely that the support arms shown in Figure 1 of Qing extend outwardly and *radially from the support body*, as recited in claim 1. Dr. Pratt states the '019 Patent specification provides for 'a plurality of *radial* arms 116 extending *outwardly*," and thus "provides for the plain meaning of 'radial.'" Ex. 1003 ¶ 107. However, neither Petitioner nor Dr. Pratt explain what they contend is the "plain meaning" for the term "radial." By way of example, a general dictionary provides the ordinary meaning of "radial" as "1. arranged like radii or rays. *See* diag. on next page. 2. having spokes, bars, lines, etc. arranged like radii, as a machine. 3. made in the direction of a radius; going from the center outward or from the circumference inward along a radius: *a radial cut*. 4. *Zool.* pertaining to structures that radiate from a central point, as the arms of a starfish. 5. Of, like, or pertaining to a radius or a ray. 6. *Mach.* A. having pistons moving inward and outward from a central point or shaft: *a radial engine; a radial pump*. B. noting a bearing designed primarily to take thrusts radial to the center of rotation. 7. *Anat., Entomol.* Of, pertaining to, or situated near the radius. 8. Acting along or in the direction of the radius of a circle: *radial motion; radial velocity*. –n. 9. a radial section or construction." Ex. 3001, 1391–1392. The diagram in the dictionary is reproduced below.



Id. at 1592. The diagram illustrates a radial arrangement of lines radiating from center C.

In Figure 1 of Qing, the asserted “support arms” are not shown to extend along a radius of the asserted center support body/center support, for example, like the spokes of a wheel or as shown in the diagram immediately above. *See* Ex. 1015, Fig. 1.

Petitioner’s argument appears to be that a protrusion in any direction meets both the “radial” and “outward” claim language. Pet. 47, n.12 (“In Delaware, 360Heros has not differentiated between ‘radial’ and ‘outward’, contending any protrusion in any direction meets both elements”). However, Petitioner has not explained why, and we are not persuaded at this stage of the proceeding, the terms “radial” and “outward” are indistinguishable.

Petitioner also asserts, through Dr. Pratt’s declaration, that Qing meets the radial limitation because the distal end of the L-shaped arms extend radially outward from the asserted support center. *See* Ex. 1003 ¶ 82. However, the distal end, like the support arm, is not shown to extend along a radius of the asserted support center. *Id.* Rather, the distal end is perpendicular to the circular structure, and therefore to the radii of the circular structure, forming the asserted support center. Dr. Pratt’s argument appears to be that each segment of the distal end is at a position that is located along a radius extending outwardly from an imaginary vertical axis through the center of the asserted support body. However, neither Petitioner nor Dr. Pratt explain why this would satisfy the limitation that the *arm extends* outwardly and *radially*.

We invite the parties to consider and further address the meaning of the term “radially,” and whether the recited claim language, “support arms extending outwardly and radially from the support body,” read in light of the entire Specification by one of ordinary skill in the art, would necessarily

exclude the orientation of the support arms and the support body identified and depicted by Petitioner in Qing Figure 1.

Based on this preliminary record, we are not persuaded Petitioner has made a sufficient showing as to limitation [1b].²

[1c] each of the support arms including a receptacle disposed thereon and in which a plurality of the receptacles are disposed radially about the exterior of said support body

Petitioner argues Qing discloses a plurality of receptacles, where each of the receptacles is an aluminum alloy base shaped “in accordance with the base shape of the” camera in order to receive the bottom of a Nikon D5000 camera. Pet. 47 (citing Ex. 1015 ¶¶ 8, 27–28; Figs. 1, 2; *see also id.* ¶ 4 (“[I]mage acquisition devices are fixed at the upper ends of the L-shaped supports.”), ¶ 20 (“Fig. 2 show a support base of [a] D5000 camera.”), ¶ 27 (“Install 5 SLR camera units...onto the aluminum alloy base processed in accordance with the bottom shape of the camera.”).

Qing Figure 2, cited by Petitioner, is shown below.

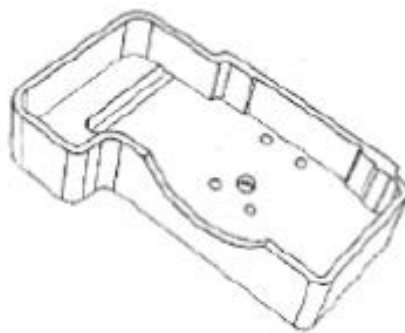


Fig. 2

² Unlike independent claims 1 and 30, independent claims 15 and 22 do not recite support arms that extend *radially*.

Qing Figure 2, above, shows a support base of a D5000 camera. Ex. 1015 ¶ 20. Petitioner further argues Qing discloses that each of the receptacles are provided on the ends of each corresponding L support arms, and thus each L support includes a receptacle disposed thereon. Pet. 48 (citing Ex. 1003 ¶¶ 82–83).

Qing Figure 1, annotated by Petitioner, is shown below.

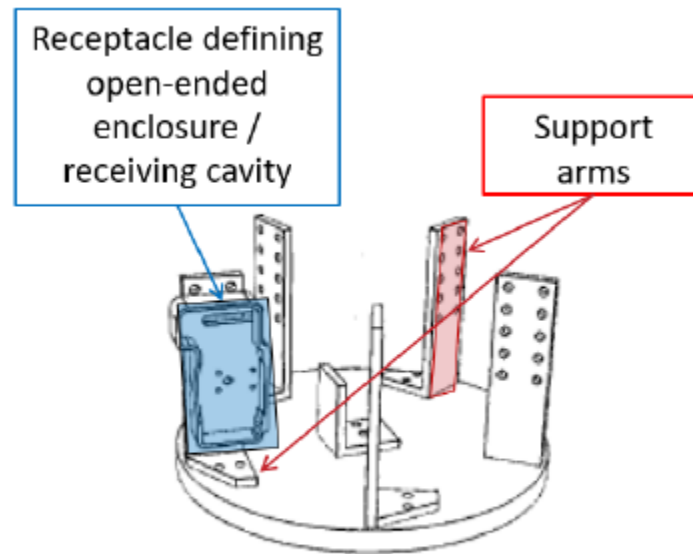


Fig. 1

Qing Figure 1, annotated by Petitioner, shown above, identifies a receptacle defining open-ended enclosure/receiving cavity and support arms. Pet. 48. Petitioner further argues Qing discloses that at least five of the six receptacles are disposed radially about the exterior of the support body, with each receptacle occupying 72 degrees of the circumference of the exterior of the support body, as seen in Figures 5 and 6. *Id.* (citing Ex. 1015 ¶ 4 (“[A]ll L-shaped supports are distributed on the workbench circumferentially and uniformly.”), ¶ 23 (“Fig. 5 shows the geometrical structure diagram of the full-scene image.”), Figs. 5, 6).

Patent Owner, using the claim construction for “receptacle” from the

California Case (a “structure to receive and hold a camera in place”), argues, “Qing . . . does not disclose . . . a . . . ‘receptacle.’” Prelim. Resp. 32–33.

Patent Owner argues a person of ordinary skill in the art “with design experience would understand that an interference fit would not function reliably to retain the camera in the base, because the base is made from metal (aluminum alloy).”³ *Id.* at 34–35 (citing Ex. 2001 ¶ 54).

Limitation [1d] (discussed in further detail below), describes a “receptacle,” where “each of said receptacles *defining an open-ended enclosure having at least one latching feature for enabling a photographic camera to be releasably retained within the defined enclosure.*” Ex. 1001, 22:33–36 (emphasis added). This description indicates that a “receptacle” is an “open-ended enclosure” where a “latching feature” allows the camera to be “releasably retained” within the enclosure.

In addition to the claim language, the Specification explains that “the camera receptacles including *being configured for supporting a camera* and including at least one feature that enables a camera to be releasably secured.” Ex. 1001, 1:59–60 (emphasis added). The Specification also describes a “receptacle” as “*defining a retaining cavity that is sized to retain a camera.*” Each of the camera receptacles further include at least one feature that permits securement and release of a retained camera.” *Id.* at 2:4–7 (emphasis added). The Specification further describes “the plurality of *retained cameras snap into various receptacles* that are defined in the holder

³ The Specification does express that “[p]referably, the receptacles are defined by a moldable plastic *or other suitable material* having adequate flexibility to permit a secure fit when the camera is attached.” Ex. 1001, 3:6–9 (emphasis added). This, however, does not necessarily preclude the use of a metal as Patent Owner argues.

assembly *that accommodate each camera based on an interference or snap fit, enabling easy removal.*” *Id.* at 3:3–6 (emphasis added). These descriptions of a “receptacle” from the Specification would inform someone of ordinary skill in the art that a “receptacle” would be sized to accommodate, support and retain a camera in a manner that allows for its easy removal.

The Specification also describes another feature that allows for the securement of the camera. *See id.* at 2:8–10 (“*the camera receptacles include a latch that is configured to open and close to secure a camera within the holding assembly*”) (emphasis added). The Specification, consistent with the language of the claim, indicates that it is the “latching feature” that provides for a “secured” camera.

Moreover, Dr. Pratt testifies, “Qing further discloses that the cameras ‘can be rapidly stabilized’ to the camera rig by attaching them to a receptacle, *a camera base shaped like the bottom of the camera.*” Ex. 1003 ¶ 77 (citing Ex. 1015 ¶ 8) (emphasis added). Dr. Pratt also testifies, “[e]ach of these D5000 cameras . . . is secured onto the enclosure using *an aluminum alloy receptacle shaped to receive the bottom of the camera.*” *Id.* ¶ 78 (citing Ex. 1015 ¶ 27) (emphasis added). Dr. Pratt further testifies, “the receptacles defining an open-ended enclosure and having a latching feature for enabling a photographic camera to be releasably retained within the enclosure.” *Id.* ¶ 79.

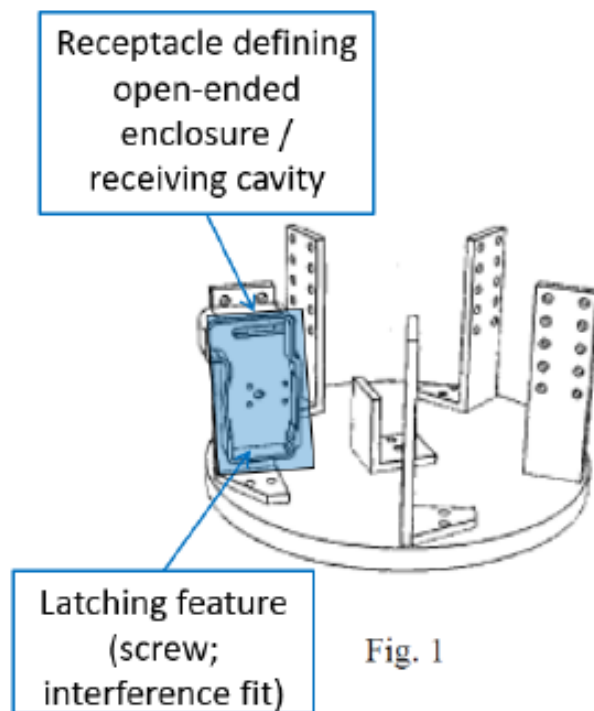
Dr. Pratt’s testimony regarding Qing’s disclosure addresses the shape of a receptacle (“like the bottom of a camera”) that allows the cameras to be “rapidly stabilized” to the camera rig. Qing’s annotated Figure 1, *supra*, comports with this description. Accordingly, at this stage of the proceeding, we credit Dr. Pratt’s testimony, which appears consistent with the claim

language, the Specification, and the prior art. Based on this preliminary record, Petitioner makes a sufficient showing as to limitation [1c].

[1d] each of said receptacles defining an open-ended enclosure having at least one latching feature for enabling a photographic camera to be releasably retained within the defined enclosure

Petitioner argues Qing discloses that each of the receptacles defines an open-ended enclosure/a receiving cavity sized to accommodate/retain the bottom of a Nikon D5000 camera such that the cameras are installed into the base in order to be fixed onto the L-shaped support arms. Pet. 49 (citing Ex. 1015 ¶¶ 27–28). Petitioner argues each of these receptacles is an open-ended enclosure as seen in Qing Figures 1 and 2. *Id.* (citing Ex. 1017, 107 (depicting a D5000 camera)).

Qing Figure 1, annotated by Petitioner, is shown below.



Qing Figure 1, annotated by Petitioner, above, identifies a receptacle

defining open-ended enclosure/receiving cavity and latching feature (screw; interference fit). Pet. 50.

Petitioner further argues,

[t]he '019 Patent specification identifies latching features such as a snap fit and an interference fit. Qing does not expressly provide a written description of the mechanism by which the camera is retained in the receptacle. A [person of ordinary skill in the art] reading Qing and seeing the drawings, however, would understand that by describing a base specifically shaped to receive a particular camera model and disclosing a screw in the center of the receptacle, Qing discloses that the camera is releasably retained by the receptacle either by an interference fit, or by a screw that engages with the tripod socket on the bottom of the camera, or by both.

Pet. 50 (citing Ex. 1001, 3:3–6, 11:54–67; Ex. 1003 ¶¶ 84–86).

Patent Owner argues, “Qing, however, does not disclose or teach or enable a ‘latching feature.’” Prelim. Resp. 33 (citing Ex. 2001 ¶¶ 51–55).

Patent Owner argues, a person of ordinary skill in the art

with design experience would understand that an interference fit would not function reliably to retain the camera in the base, because the base is made from metal (aluminum alloy). Forcing the camera into a hard, stiff metal base with an interference fit would gouge the camera. The resulting gouges would not only damage the camera, they would also reduce the level of interference fit as the camera is repeatedly installed in and removed from the base. This would cause the retention of the camera to be unreliable. Even though petitioner alleges that Qing discloses “a screw in the center of the receptacle,” there is no reference to a screw in Qing, either in the text or in the drawings.

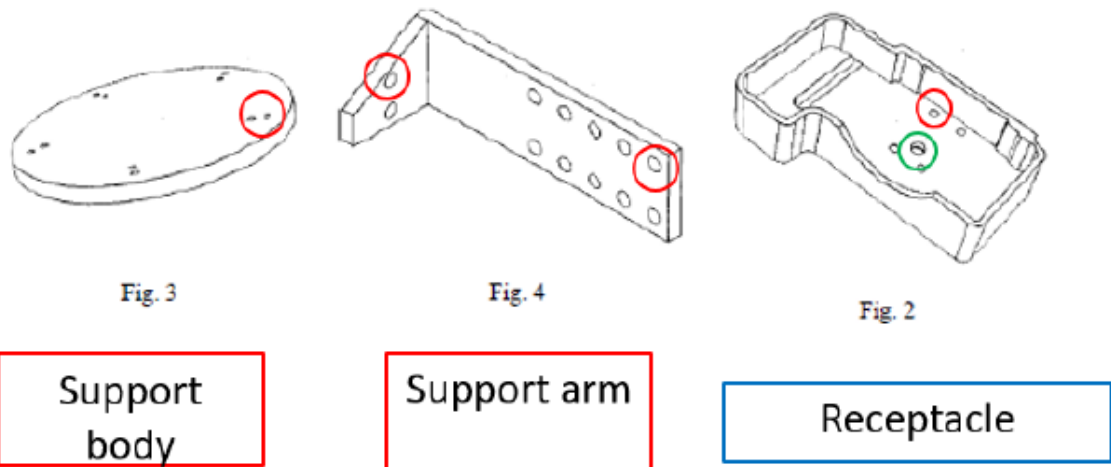
Prelim. Resp. 34–35 (citing Ex. 2001 ¶ 54). Patent Owner further argues Qing’s Figure 2 “merely discloses an open box-like object to host a camera device without any ‘latching features’ present.” *Id.* at 35–36.

Dr. Pratt testifies, however,

[a]lthough Qing directs users to “install” the cameras onto the metal receptacles, and to “fix” the camera and receptacle onto the L-shaped support arms, it does not mandate any particular attachment methods. Qing’s figures, however, depict multiple corresponding holes (such as those marked in red below) on the support body, L-shaped arms, and receptacles that would allow the components to be fastened together with screws or other fasteners. Likewise, a central hole in the receptacle, marked in green below, generally corresponds to the typical location of the tripod screw hole on a digital camera such as the Nikon D5000.

Ex. 1003 ¶ 87 (citing Ex. 1015, Figs. 2–4 annotated).

Qing’s annotated Figures 2–4 are shown below.



Qing’s Figures 2–4, above, are annotated to show the location of holes in the support body, support arm, and receptacle. Ex. 1003 ¶ 87.

Dr. Pratt further testifies,

a [person of ordinary skill in the art] would understand that the camera could be releasably retained in the receptacle using a screw in the tripod mount, through an appropriately snug interference fit with the receptacle, or another method such as using heavy duty hook-and-loop fasteners. . . . A [person of ordinary skill in the art] would understand that when using the

tripod mount for securement, any of several commonly used screw designs would be appropriate.

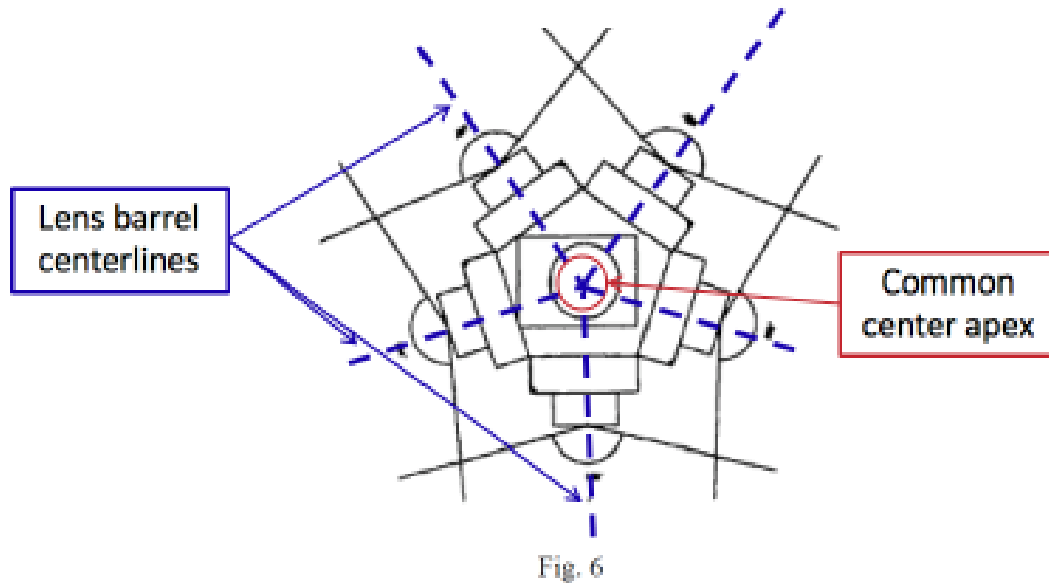
Id. ¶ 89.

At this stage of the proceeding, we credit Dr. Pratt's testimony, which appears consistent with the claim language, the Specification, and the prior art. Based on this preliminary record, Petitioner makes a sufficient showing as to limitation [1d].

[1e] wherein the receptacles are oriented about said support such that each retained camera provides an overlapping field of view, the cameras being disposed on the support to create either a 360 degree by 180 degree full spherical composite image or a 360 degree composite image

Petitioner argues Qing discloses receptacles oriented about the support/supporting frame such that the cameras retained/loaded in the receptacles provide an overlapping field of view to create or enable "a 360° full-scene digital image." Pet. 51 (citing Ex. 1015 ¶ 1). Petitioner also argues Qing discloses that the centerline of the lens barrel of each retained camera is configured to intersect at a common center apex. *Id.* at 52 (citing Ex. 1015 ¶ 4 ("[A]ll L-shaped supports are distributed on the workbench circumferentially and uniformly."), ¶ 23 ("Fig. 5 shows the geometrical structure diagram of the fullscene image."), Figs. 5, 6.

Qing Figure 6, annotated by Petitioner, is shown below.



Qing Figure 6, annotated by Petitioner, above, identifies a common center apex and lens barrel centerlines. Pet. 52.

Patent Owner does not make any arguments directed to limitation [1e]. Based on this preliminary record, Petitioner makes a sufficient showing as to limitation [1e].

Summary of Anticipation of Claim 1 by Qing

On this preliminary record, for the reasons stated above, we are not persuaded Petitioner has demonstrated a reasonable likelihood it would prevail in showing claim 1 is unpatentable as anticipated by Qing.

3. Obviousness of Claim 1

a. Qing and Geerds

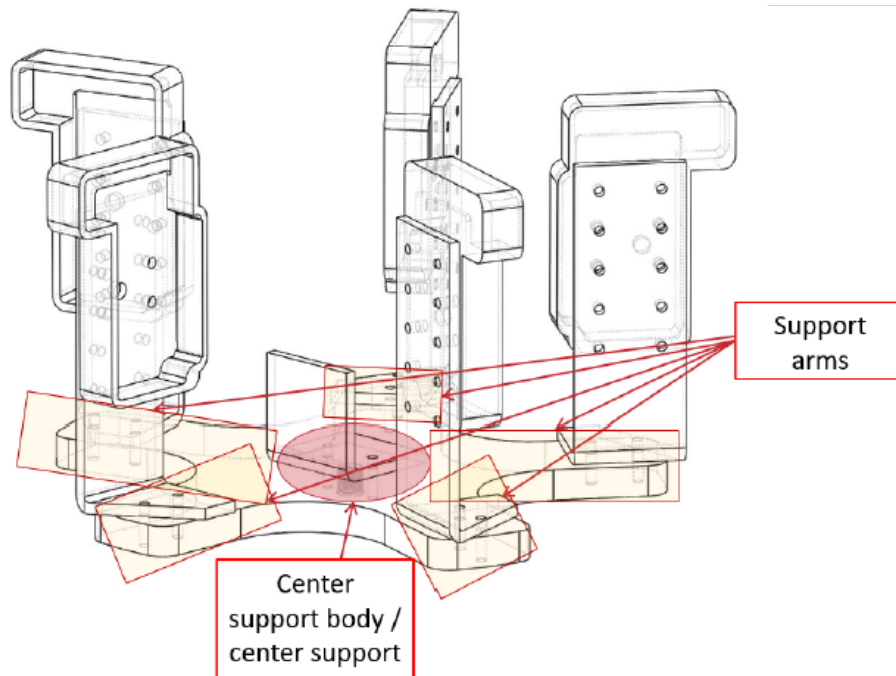
In reference to limitation [1b], Petitioner asserts a person of ordinary skill in the art “would have found it obvious and desirable to modify Qing’[s] support (workbench) to have outwardly and radially extending arms in view of the design taught by Geerds.” Pet. 46–47 n.12.

In support of this position, Dr. Pratt testifies,

Geerds teaches arms that extend horizontally and radially from a center support body. Geerds also teaches that such a rig can be mounted and used on a moving mountain bike. A [person of ordinary skill in the art] would understand that the empty spaces between each of Geerds' support arms would reduce the weight of the device compared to the same design without empty spaces without compromising durability, allowing the device to be used on a mountain bike or other weight-sensitive applications (e.g., being mounted on a backpack or large quadcopter drone) while still supporting the camera. With respect to Qing, a [person of ordinary skill in the art] would understand that because Qing's circular support lacked any such cutouts, applying the design principle taught by Geerds to Qing would likewise result in weight savings, and allow Qing to capture 360-degree images in more weight-sensitive applications. Such a modification would be well within the ability of a POSITA, and could easily be accomplished with a grinder, rotary tool, or other cutting or shaping device. Qing as modified by Geerds would have five arms extending radially and outwardly from a center support body.

Ex. 1003 ¶ 83.

Dr. Pratt refers to an annotated Solidworks rendering of Qing in view of Geerds, shown below.



An annotated Solidworks rendering of Qing in view of Geerds, shown above, identifies support arms and center support body/center support. *Id.*

Dr. Pratt also testifies that in modifying Qing, a person of ordinary skill in the art “would know to balance the depth of the cut-out portions to balance weight and rig stability depending on the materials and devices used, and the desired usage.” *Id.* ¶ 84.

Patent Owner argues,

Petitioner does not provide any guidance or articulated reasoning to explain why a [person of ordinary skill in the art] would look to Geerds to combine with Qing to provide any missing limitations from Qing, nor why it would be desirable to combine the two references. In fact, the large diameter of Qing’s “support body,” as designated by petitioner, would cause the device, when combined with radially extending support arms, to be much larger, heavier, and harder to handle than necessary, teaching away from a motivation to combine these two references.

Prelim. Resp. 41 (citing Ex. 2001 ¶ 66).

Patent Owner also argues, “Petitioner has not demonstrated any motivation or rationale to combine Qing with Geerds to provide the claim limitation of ‘extending [outwardly and] radially’ or ‘[outwardly and] radially extending.’” *Id.* at 42.

Petitioner presents arguments that limitation [1b] is taught by the combination of Qing and Geerds, and presents evidence supporting the same. Petitioner relies on the testimony of Dr. Pratt to support its contentions. *See, e.g.*, Ex. 1003 ¶¶ 83–84. Dr. Pratt testifies, for example, that a person of ordinary skill in the art “applying the design principle taught by Geerds to Qing would . . . result in weight savings, and allow Qing to capture 360-degree images in more weight-sensitive applications.” *Id.* ¶ 83. This combination of Qing and Geerds appears to result in an assembly where Petitioner has identified support arms extending outwardly and radially from the support body, avoiding the issue faced by Qing alone. *See* Section II. G. 2. 1[b] *supra*.

Patent Owner’s argument that combining Qing and Geerds in the manner described by Petitioner “would cause the device, when combined with radially extending support arms, to be much larger, heavier, and harder to handle than necessary, teaching away from a motivation to combine these two references,” is not a persuasive teaching away argument. First, this is Dr. King’s testimony (*see* Ex. 2001 ¶ 66), which, although contrary Dr. Pratt’s testimony, does not constitute a “teaching away” argument. Instead, to teach away, a *reference* must actually “criticize, discredit, or otherwise discourage” investigation into the claimed solution. *In re Fulton*, 391 F.3d 1195, 1201 (Fed. Cir. 2004) (emphasis added). Dr. King’s contrary testimony is not a prior art reference.

At this stage in the proceeding, we credit Dr. Pratt’s testimony in support of Petitioner’s arguments. Accordingly, based on this preliminary record, for the reasons stated above, we are persuaded Petitioner has demonstrated a reasonable likelihood it would prevail in showing that claim 1 is unpatentable as obvious over the combination of Qing and Geerds.

b. Qing and Kayanuma

Petitioner argues a person of ordinary skill in the art “would have been motivated to modify Qing with the digital camera cradles taught by Kayanuma to improve Qing’s releasable camera attachment and improve the mechanical design and operability of the Qing camera rig.” Pet. 61.

Petitioner argues that a person of ordinary skill in the art

would have been motivated to modify Qing’s camera rig to use Kayanuma’s cradles for several reasons. Both references are in the same field of endeavor, camera holders for digital cameras. In addition, while a [person of ordinary skill in the art] would have recognized that Qing taught a desirable camera configuration and orientation for capturing high-resolution 360-degree images, a [person of ordinary skill in the art] would have also recognized that there was ample room for improvement in Qing’s design to simplify operation and improve camera securement.

Id. at 63–64.

Petitioner also argues a person of ordinary skill in the art “would have been aware that improving the camera securement on 360-degree camera rigs would have allowed [them] to be used with a broader range of known applications, such as being mounted on a bicycle, or on a moving car.” *Id.* at 64 (citing Ex. 1003 ¶ 104; *see also* Ex. 1011, 00:35–01:03; Ex. 1020, 1:20–2:26). Petitioner argues that a person of ordinary skill in the art

concerned about the degree of securement, and/or the ease of camera attachment and release would have recognized that Kayanuma’s hook and cradle connector system would not only

ensure securement if the rig were tilted, such as when mounted on a moving bicycle, but could also allow for quicker attachment and release.

Id. (citing Ex. 1022, 8:17-23, 8:28-31; Ex. 1003 ¶¶ 101–106).

Petitioner further argues a person of ordinary skill “would understand that when combined with Qing’s rig, Kayanuma’s cradles would obviate the need to connect and disconnect computer cables directly to each camera, as the cables would only need to be connected to the cradles.” *Id.* at 65 (citing Ex. 1003 ¶¶ 105–106).

Patent Owner argues, “Petitioner’s arguments fail for the same reasons as for Ground 2 discussed above. Petitioner cannot merely cite to two different references to combine the various claim limitations of the independent claims of the ‘019 Patent to meet its burden under § 103.”

Prelim. Resp. 43. Patent Owner also argues,

[a]n underlying flaw in [sic] the suggestion to use Kayanuma to provide a latching feature for Qing is that Katanuma [sic] does not disclose a latching feature, What he discloses is a two-component system for latching, made up of (1) The hooks 84, which are part of the cradle 80, and (2) the engaging parts 94, which are part of the camera 90. Kayanuma (Ex. 1022 at 8:11-13). The hooks by themselves are only half of a latching mechanism. They rely on the engaging parts on the camera to be able to latch the camera in place.

Id. at 44 (citing Ex. 2001 ¶ 73).

Patent Owner also argues,

the combination of Kayanuma’s two-component latching system with Qing would limit the device to being used only with specific cameras having the particular engaging parts 94 required to mate up with the device. This would render the device much less versatile and useful than devices using the latching arrangements described in the specification of the ‘019 patent, and thus would

teach away from one being motivated to combine these two references.

Id. at 45 (citing Ex. 2001 ¶ 74).

Patent Owner further argues, “[t]here is no reasoning or support for this statement, nor motivation to combine elements of Kayanuma with Qing to provide the limitation of a ‘latching feature.’” *Id.*

Here, Petitioner presents arguments that the limitations of claim 1 are taught by the combination of Qing and Kayanuma, and presents evidence supporting the same. Petitioner relies on the testimony of Dr. Pratt to support its contentions. *See* Ex. 1003 ¶¶ 96–113. Dr. Pratt testifies, for example, that a person of ordinary skill in the art “would have been motivated to modify Qing with the digital camera cradles taught by Kayanuma to improve Qing’s releasable camera attachment and improve the mechanical design and operability of the Qing camera rig.” Ex. 1003 ¶ 96.

Patent Owner’s argument that combining Qing and Kayanuma in the manner described by Petitioner, “would render the device much less versatile and useful than devices using the latching arrangements described in the specification of the ’019 patent, and thus would teach away from one being motivated to combine these two references” is not a persuasive argument. Dr. King’s testimony (*see* Ex. 2001 ¶ 74), which may be contrary to Dr. Pratt’s testimony, does not constitute a “teaching away” argument. As noted previously, to teach away, a *reference* must actually “criticize, discredit, or otherwise discourage” investigation into the claimed solution. *In re Fulton*, 391 F.3d at 1201 (emphasis added). Dr. King’s testimony is not a prior art reference.

At this stage in the proceeding, we credit Dr. Pratt’s testimony in support of Petitioner’s arguments as to the combination of Qing with

Kayanuma to improve Qing's releasable camera attachment and improve the mechanical design and operability of the Qing camera rig. However, the asserted combination of Qing with Kayanuma does not address the issues we discussed above as to whether Qing discloses support arms that extend outwardly and radially from the support body. Accordingly, based on this preliminary record, and for the reasons stated above, *supra* Sec. II. G. 2. [1b], we are not persuaded Petitioner has demonstrated a reasonable likelihood it would prevail in showing that claim 1 is unpatentable as obvious over the combination of Qing and Kayanuma.

4. *Independent Claims 15, 22, and 30*

Independent claims 15, 22, and 30 are similar to independent claim 1, but with some differences. While claim 1 recites a "holding assembly," claim 15 recites a "method for manufacture of a holding assembly," claim 22 recites a "system for creating 360 degree images," and claim 30 recites a "holding fixture." Ex. 1001, 22:24–24:40.

Another difference is that while claim 1 recites, "support arms extending outwardly and *radially* from the support body," claim 15 recites, "a plurality of outwardly extending support arms," claim 22 recites, "a plurality of support arms outwardly extending from the center support," and claim 30 recites, "a plurality of support arms outwardly and *radially* extending from the support body." *Id.* (emphasis added). Thus, while independent claims 1 and 30 include the limitation of the support arms extending outwardly and *radially* from the support body, claims 15 and 22 do not use the term *radially*.

We have considered the evidence and the arguments presented by Petitioner and Patent Owner with respect to independent claims 15, 22, and 30. Because independent claim 15 recites the limitation "a plurality of

outwardly extending support arms,” and claim 22 recites the limitation, “a plurality of support arms outwardly extending from the center support,” and neither claim 15 nor claim 22 uses the term “*radially*,” based on this preliminary record, and for the reasons stated above with respect to claim 1, we are persuaded Petitioner has demonstrated a reasonable likelihood it would prevail in showing that claims 15 and 22 are unpatentable as anticipated separately by Geerds and Qing, and obvious over the combination of Qing and Geerds, as well as the combination of Qing and Kayanuma.

With respect to independent claim 30, because claim 30 recites the limitation, “a plurality of support arms outwardly and radially extending from the support body,” based on this preliminary record, and for the reasons stated above with respect to claim 1, we are persuaded Petitioner has demonstrated a reasonable likelihood it would prevail in showing that claim 30 is unpatentable as anticipated by Geerds, and obvious over the combination of Qing and Geerds. However, we are not persuaded Petitioner has demonstrated a reasonable likelihood it would prevail in showing that claim 30 is unpatentable as anticipated by Qing, or obvious over the combination of Qing and Kayanuma.

5. Dependent Claims

With respect to the dependent claims, Patent Owner argues, “[b]ecause Petitioner has not demonstrated evidence sufficient to show the unpatentability of the independent claims 1, 15, 22 and 30,⁴ the Board should not institute an IPR for dependent claims 2-5, 16, 19, 23, 25, 34 and

⁴ Patent Owner makes substantially the same arguments with respect to independent claims 15, 22, and 30 as it makes with respect to independent claim 1. *See, e.g.*, Prelim. Resp. 25–32.

37 because the claims from which they depend have not been shown to incorporate all the limitations as required under 35 U.S.C. § 315(a).”

Prelim. Resp. 45–46.

We have considered the evidence and the arguments presented by Petitioner and Patent Owner with respect to the dependent claims, and find that Petitioner has made a sufficient showing for the dependent claims under the grounds where Petitioner has demonstrated a reasonable likelihood it would prevail on the corresponding independent claim.

III. CONCLUSION

For the foregoing reasons, we determine that Petitioner has demonstrated a reasonable likelihood that it would prevail in showing at least one of the challenged claims is unpatentable on the asserted ground. Because Petitioner has satisfied the threshold for institution as to at least one claim, we institute *inter partes* review on all claims and all grounds raised in the Petition. *See SAS Institute Inc. v. Iancu*, 138 S. Ct. 1348, 1359–60 (2018) (holding that a decision to institute under 35 U.S.C. § 314 may not institute on fewer than all claims challenged in the petition).

IV. ORDER

Accordingly, it is

ORDERED that an *inter partes* review is instituted as to all challenged claims and all grounds raised in the Petition; and

FURTHER ORDERED that *inter partes* review is instituted commencing on the entry date of this Order, and pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of a trial.

IPR2018-01754
Patent 9,152,019 B2

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